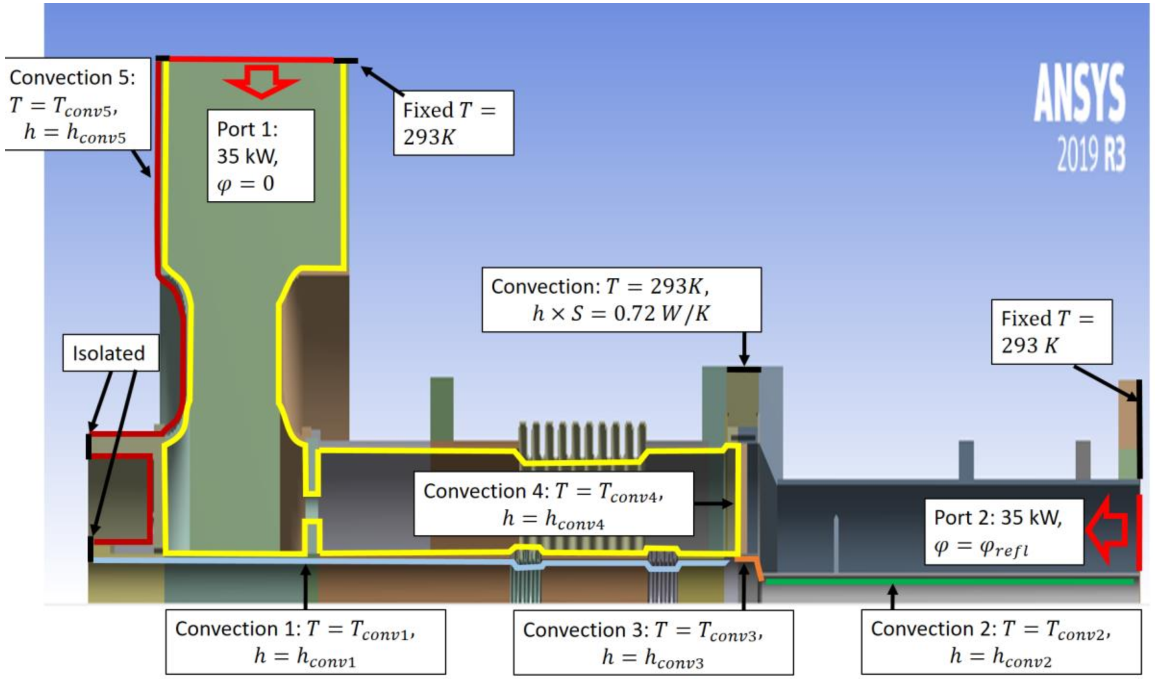
Assumptions



Part	Convection coefficient
Inside inner conductor - air side	$h_1[Wm^{-2}K^{-1}] = 11.6 \times \dot{m}[g/s]$
Inside inner conductor - vacuum side	$h_2[Wm^{-2}K^{-1}] = 72 + 85.4 \times \dot{m}[g/s]$
Inside inner sleeve	$h_3[Wm^{-2}K^{-1}] = 20 \times \dot{m}[g/s]$
Between inner and outer conductors - air side	$h_4 = 3\ Wm^{-2}K^{-1}$
Outside air	$h_5 = 5\ Wm^{-2}K^{-1}$

Reflection phase	Ceramic window [W]	Support [W]	Inner cond. air side [W]	Inner cond. vacuum side [W]	Outer cond. air side [W]	Outer cond. vacuum side [W]	Doorknob [W]	Total [W]
$4\pi/8$	2.9	3.0	42.6	33.9	10.0	5.5	17.5	115.4
$12\pi/8$	9.2	0.5	58.2	74.4	11.8	11.6	61.9	227.6

Table 5: RF losses in the coupler for $P_{in} = 35kW$, full reflection.

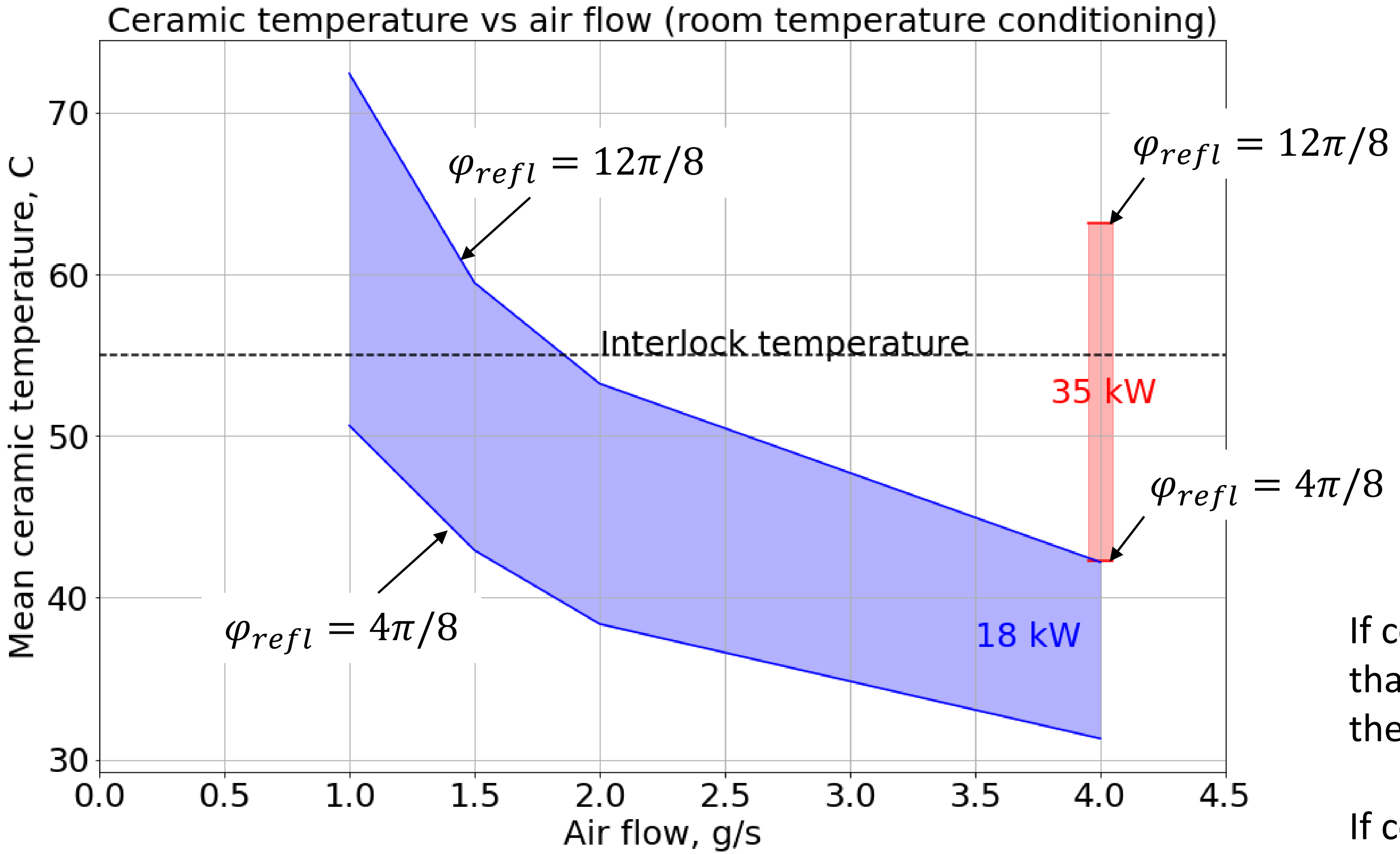
$$T_1^{in} = 293\ K,$$

$$T_i^{out} = T_i^{in} + \frac{P_i^{abs}}{C_p \dot{m}},\quad i = 1..4,$$

$$T_i^{conv} = (T_i^{in} + T_i^{out})/2,$$

For 18 kW, all the losses are proportional with input power

Results



If conditioned at 35 kW, flow rate higher than 4 g/s might be needed to stay below the threshold.

If conditioned at 18 kW, the interlock temperature can be easily reached by decreasing the air flow to 1 – 1.5 g/s.